

**REMARKS**

The Office Action dated August 21, 2003, has been received and carefully noted. The above amendments to the claims, and the following remarks are submitted as a full and complete response thereto. Claims 1, 2, 4, 5, and 7 are pending in this application with claim 1 being amended and claims 3, 6, and 8 being cancelled. No new matter is presented. In the outstanding Office Action, claims 1-8 were rejected under 35 U.S.C. § 103(a) (four different rejections). In view of the above amendments and the following remarks, Applicant requests the favorable consideration of claims 1, 2, 4, 5, and 7.

**35 U.S.C. 103(a)**

Claims 1-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Japanese Patent 11-307791 (hereinafter JP '791) in view of Yamagishi et al. (U.S. Patent No. 6,300,556). The Office Action takes the position that JP '791 and Yamagishi in combination teach and/or suggest the features recited in claims 1-8. Claims 3, 6, and 8 are cancelled, therefore, the rejection of these claims is moot. Applicant submits that claims 1, 2, 4, 5, and 7 recite subject matter that is neither taught nor suggested by the applied references.

Claim 1 is directed to a solar cell module comprising a light incidence side light transmitting member, a rear surface member, and a plurality of solar cell elements. The light incidence side light transmitting member is made of glass containing at least sodium. The rear surface member is a resin film. The plurality of solar cell elements are sealed with a sealing resin between the light incidence side light transmitting member and the rear surface member. The light incidence side light transmitting member is adhered at a light

incidence side of the plurality of solar cell elements by interposing the sealing resin. The rear surface member is adhered at a rear surface of the plurality of solar cell elements by interposing the sealing resin. The solar cell element has a transparent electrode at one side of a p-type or n-type crystalline silicon substrate and an n-type or p-type thin film amorphous semiconductor layer at the other side of a p-type or n-type crystalline silicon substrate, on which a transparent electrode is formed. The p-n junction is formed between the crystalline substrate and the thin film amorphous semiconductor layer. The crystalline silicon substrate is position between the thin film amorphous semiconductor layer and the light transmitting member.

Japanese Patent '791 discloses a solar cell module that is provided with a plurality of both surface light incident type solar cells 1 which are arranged with an interval in distance in an ethylene vinyl acetate layer 2 and a glass plate 3 on the surface side of the module to which more light enters. A light-transmitting sheet 4 is also disclosed. The thin film amorphous semiconductor layer forming a p-n junction is directly facing the light transmitting member.

In contrast, the claimed invention recites a solar cell element that comprises a crystalline silicon substrate positioned between a thin film amorphous semiconductor layer for forming a p-n junction and a light transmitting member. As a result, the crystalline silicon substrate in the present invention can block sodium ions deposited from the light transmitting member, thereby preventing sodium ions from reaching to the p-n junction, which is important in forming an electric filed. Thus, a highly reliable solar cell module is provided. In other words, the combination of JP '791 and Yamagishi fail to teach and/or suggest a solar cell element having a transparent electrode at one side of a p-type or n-

type thin crystalline silicon substrate, on which a transparent electrode is formed, wherein a p-n junction is formed between the crystalline substrate and the thin film amorphous semiconductor later. The combination of the references also fails to teach and/or suggest the crystalline silicon substrate positioned between the thin film amorphous semiconductor layer and the light transmitting member. Therefore, Applicant requests the withdrawal of the rejection of claim 1 under 35 U.S.C. 103(a).

Claims 2, 4, 5, and 7 are dependent upon claim 1. It is respectfully submitted that claims 2, 4, 5, and 7 recite subject matter that is neither taught nor suggested by the applied references for at least the reasons mentioned above. Accordingly, Applicant requests the withdrawal of the rejection of claims 2, 4, 5, and 7 under 35 U.S.C. 103(a).

Claims 1-5, 7 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hanoka et al. (U.S. Patent No. 6,353,042) in view of Yamagishi and in view of JP '791. The Office Action takes the position that the combination of the cited references teaches and/or suggests all the features recited in the rejected claims. Applicant respectfully disagrees.

Hanoka discloses a solar cell module using crystalline solar cells, wherein light can enter from both sides of the solar cell. However, Hanoka does not teach and/or suggest a solar cell element that comprises a crystalline silicon substrate positioned between a thin film amorphous semiconductor layer for forming a p-n junction and a light transmitting member. Additionally, neither Yamagishi nor JP '791 cures the deficiencies of Hanoka.

Furthermore, the cited references fail to teach and/or suggest a solar cell element having a transparent electrode at one side of a p-type or n-type thin film amorphous semiconductor layer at the other side of a p-type or n-type crystalline silicon substrate.

Thus, the cited references also fail to teach and/or suggest a crystalline silicon substrate positioned between the thin film amorphous semiconductor layer and the light transmitting member. Therefore, Applicant respectfully requests the withdrawal of the rejection of claims 1 under 35 U.S.C. 103(a).

Claims 2, 3, 4, 5 and 7 are dependent upon claim 1, therefore, these claims recite subject matter that is neither taught nor suggested by the applied references for at least the reasons mentioned above. Thus, Applicant requests the withdrawal of the rejection of claims 2, 3, 4, 5, and 7 under 35 U.S.C. 103(a).

Claims 1-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hanoka in view of Yamagishi, Nakagawa (U.S. Patent No. 5,858,120) and JP '791. The Office Action utilizes Nakagawa to teach a method for forming a crystalline solar cell element, as recited in claim 6. Claim 3, 6, and 8 are cancelled. Therefore, the rejection of claims 3, 6, and 8 is moot. Furthermore, it is respectfully submitted that the combination of the cited references fail to teach each and every element recited in claims 1, 2, 4, 5, and 7.

As mentioned above, the combination of the cited references fail to teach and/or suggest a solar cell element having a transparent electrode at one side of a p-type or n-type crystalline silicon substrate and an n-type or p-type thin film amorphous semiconductor layer at the other side of a p-type or n-type crystalline silicon substrate, on which a transparent electrode is formed. The cited references also fail to teach and/or suggest a p-n junction formed between the crystalline substrate and the thin film amorphous semiconductor layer and the crystalline silicon substrate being positioned between the thin film amorphous semiconductor layer and the light transmitting member.

Nakagawa does not cure the deficiencies of Hanoka, Yamagishi, and JP '791. Therefore, Applicant respectfully requests the withdrawal of the rejection of claims 1, 2, 4, 5, and 7 under 35 U.S.C. 103(a).

Claim 6 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hanoka in view of Yamagishi and JP '791 and further in view of Matsushita (U.S. Patent No. 6, 222,118). Claim 6 is cancelled. Therefore, the rejection of claim 6 is moot.

In view of the above distinctions, it is submitted that the cited references fail to teach and/or suggest the features of the claimed invention. Moreover, the combination the cited references fail to teach and/or suggest the claimed invention. Specifically, the combination of these references fails to teach and/or suggest a crystalline silicon substrate positioned between the thin film amorphous semiconductor layer and the light transmitting member. Therefore, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1, 2, 4, 5, and 7 under 35 U.S.C. § 103(a).

## **Conclusion**

Applicants' remarks have overcome the rejections set forth in the Office Action dated August 21, 2003. Applicant's remarks have distinguished claims 1, 2, 4, 5 and 7 from the combination of the cited references, and thus overcome the rejection of these claims under 35 U.S.C. § 103(a). Accordingly, claims 1, 2, 4, 5, and 7 are in condition for allowance. Therefore, Applicant respectfully requests consideration and allowance of claims 1, 2, 4, 5, and 7.

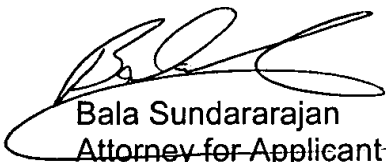
Applicant submits that the application is now in condition for allowance with claims 1, 2, 4, 5, and 7 contained therein. Should the Examiner believe the application is not in

condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees, which may be required with respect to this paper to Counsel's Deposit Account 01-2300.

Respectfully submitted,

Arent Fox Kintner Plotkin & Kahn



Bala Sundararajan  
Attorney for Applicant  
Reg. No. 50,900

Customer No. 004372  
1050 Connecticut Ave. NW  
Suite 400  
Washington, D.C. 20036-5339  
Tel: (202) 857-6261  
Fax: (202) 638-4810

Enclosure(s):      Petition for Extension of Time

BKS/bgk